



CDF Operations Summary

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OSU/CDF

Oct 14, 2002

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- New Init. Lum. Record: $37.4 \text{ e30 cm}^{-2} \text{ s}^{-1}$
- CDF recorded 5.3 pb^{-1} to tape of 6.9 pb^{-1} delivered.

<i>Store</i>	<i>Start</i>	<i>Duration (hr)</i>	<i>Init. Lum (e30 cm⁻² s⁻¹)</i>	<i>B0TLUM (nb⁻¹)</i>	<i>B0TLIV (nb⁻¹)</i>	<i>Efficiency (%)</i>
1830	Sun 10/06	15.2	24.2	764.2	581.5	76.1
1832	Mon 10/07	15.5	30.9	956.3	811.5	84.9
1834	Tue 10/08	18.0	34.9	1158.4	941.3	81.3
1836	Wed 10/09	20.5	37.4	1391.1	1082.0	77.8
1839	Thu 10/10	19.0	29.8	970.9*	560.2*	57.7*
1841	Fri 10/11	22.6	33.7	1192.4	1001.5	83.9
1843	Sat 10/12	4.0	35.9	418.0	317.5	75.9

* Miscogged pbar transfer in this store



Stores 1830 & 1832

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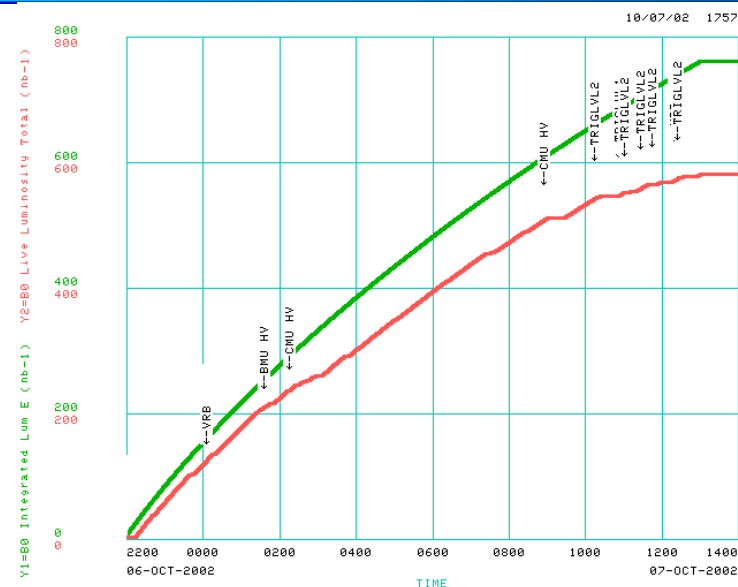
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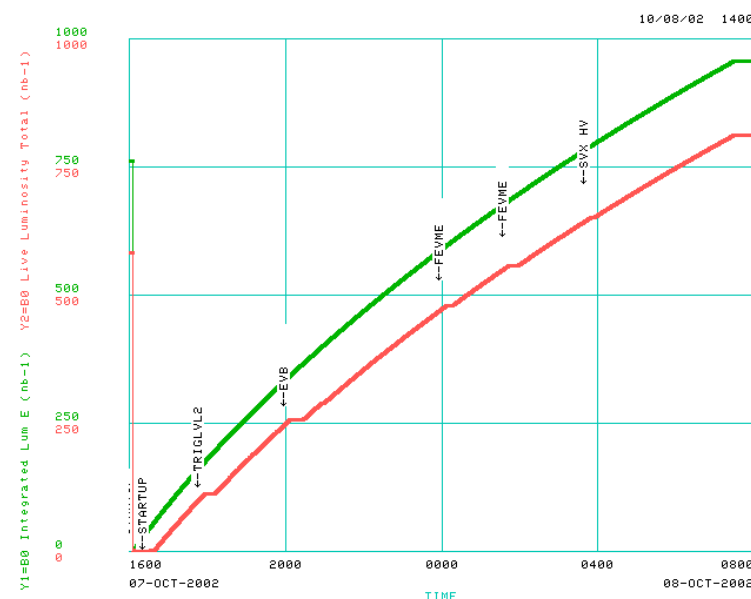
Store 1830 - Sun/Mon

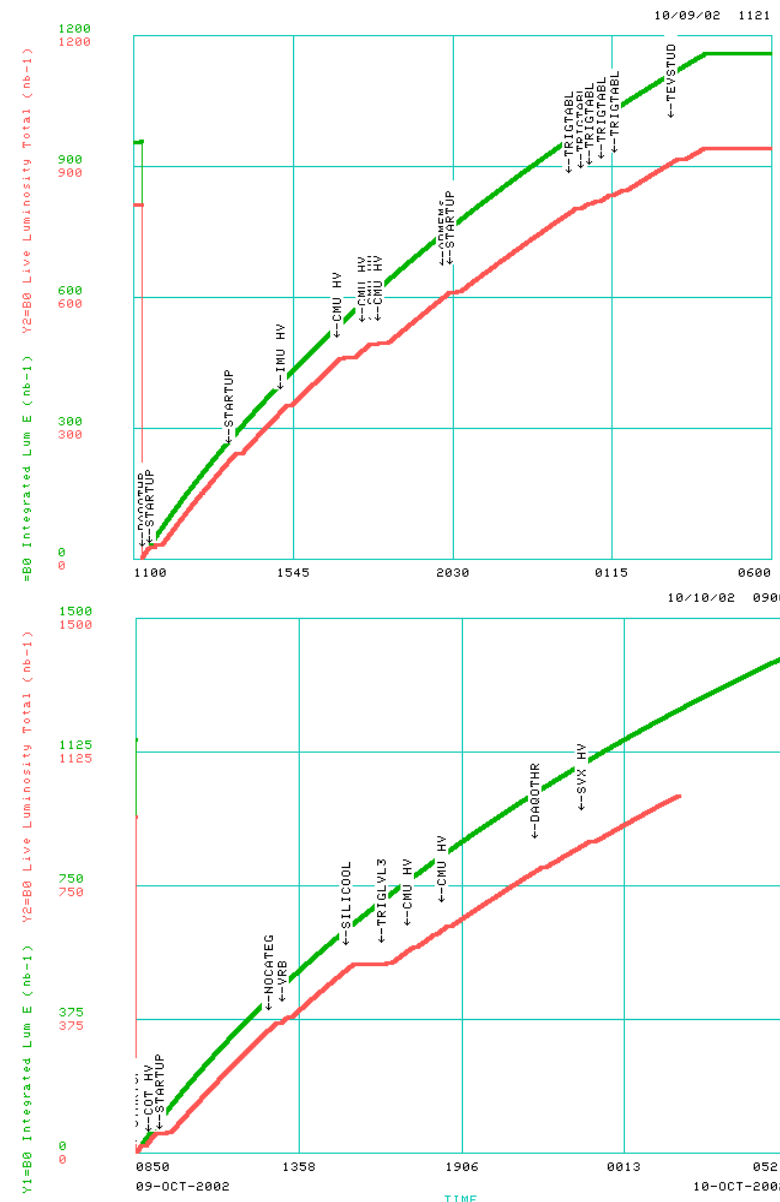
- Losses low initially, Silicon in fast.
- periodic losses in LOSTPB causes frequent CMX trips in SE.
- RF station lost. Shift crew alerted by TEVMON.
- "TevMon" is a Java Program that monitors the beam conditions using information from ACNET
- Test new L2 trigger firmware.
- Trigger testing at end of store.



Store 1832 - Mon/Tues

- Frontend crate problems delay start.
- Downtime
 - L2 trigger electronics - associated w/new firmware.
 - busy t.o. from svx & evb cleanup.
- very smooth and efficient data taking, ~ 85% for entire store.







Stores 1839 & 1841

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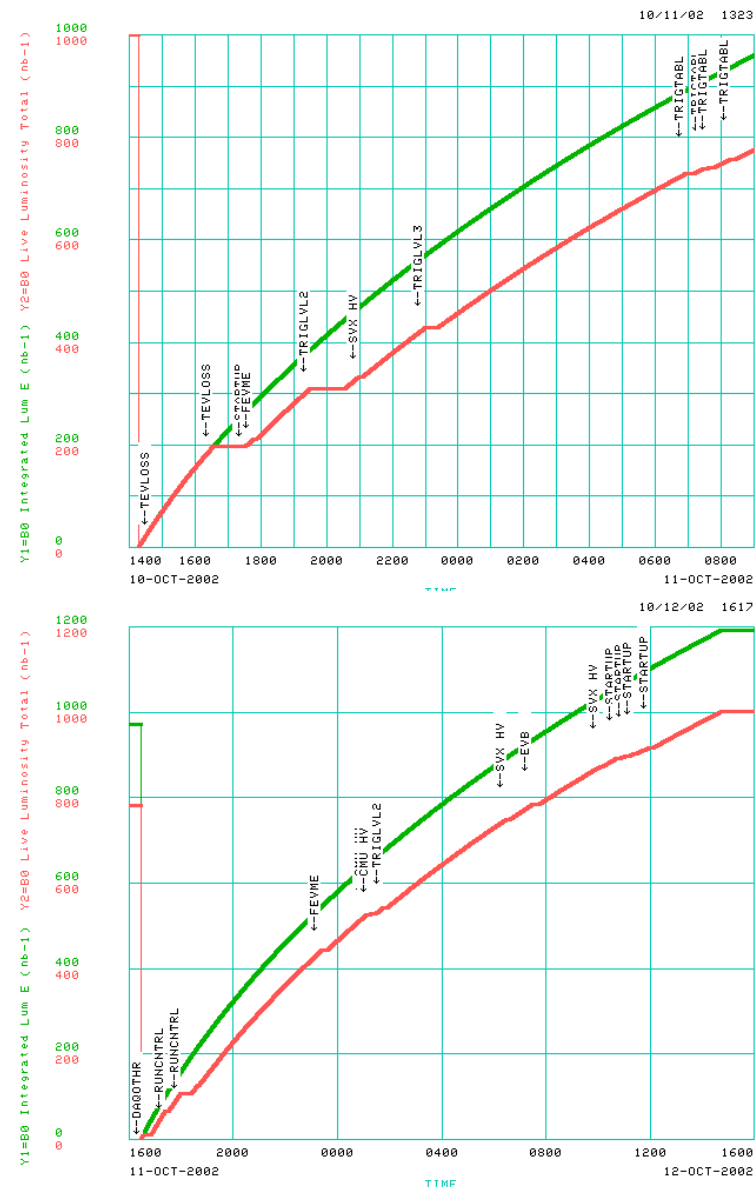
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Store 1839 - Thur / Fri

- 5th pbar transfer miscogged, end up in 1RF bucket off from where they resulting in HIGH LOSSES
 - we cannot raise HV.
- TEL is used to remove them - pretty slick! After pbars removed (200 nb^{-1} later), losses are low enough to run.
- Smooth running thereafter
 - aside from L2 trigger electronics and I3/evb.
- Tested trigger tables near end of store.

Store 1841 - Fri / Sat

- Efficient data taking
- Downtime
 - DAQ software hiccup, L2 electronics, CMU, Si HV trips
- Tested trigger tables near end of store.





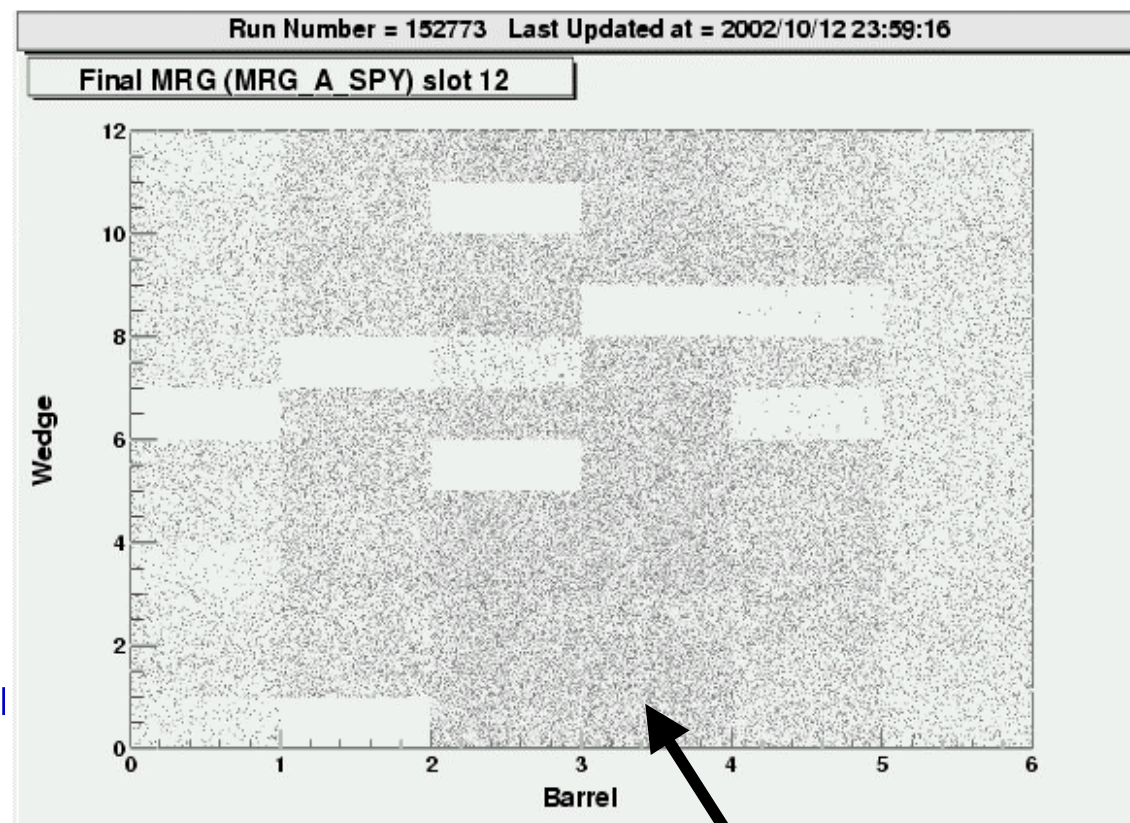
Access Between Stores

Friday – 2hr access

- Silicon FE (FIB and FTM) board swaps.
- Got back a wedge in the SVT
L2 tracking trigger that uses silicon information.
- Power supply replaced for controller unit for muon scintillators.

Saturday – 1hr access

- Another FE Board swap for silicon (Fib board).
 - Recovered 3 ladders.



The recovered wedge works (B4W1)!



Added Functionality to Data Monitoring

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- We have begun utilizing the **error warning & recovery feature in the data monitoring programs.**
 - *Consumer -> ErrorReceiver -> ErrorHandler -> RunControl*
- **Consumer**
 - Software modules(AC++ / Root) that monitor and analyze data in the event stream. The Shift crew views histograms/tables of this information.
 - Eg. SVXMON notices a channel with out of tolerance current, an error state, that can be recovered by reinitializing the chip.
 - Communicates error condition via Root unix sockets to the ...
- **ErrorReceiver**
 - Fields all error messages from the different monitoring programs.
 - Updates messages on an error status web page.
 - Only serious errors with specific associated action are sent via smart sockets...
- **ErrorHandler**
 - Receives the error messages from the consumers and other clients(FE crates) and communicates with the **DAQ(RunControl)**.
 - The error messages from different consumers can be correlated and compared so that the appropriate action to **recover from the error** is taken.
 - E.g an automatic **HALT-RECOVER-RUN**.
 - Error messages, and the response taken, are logged.



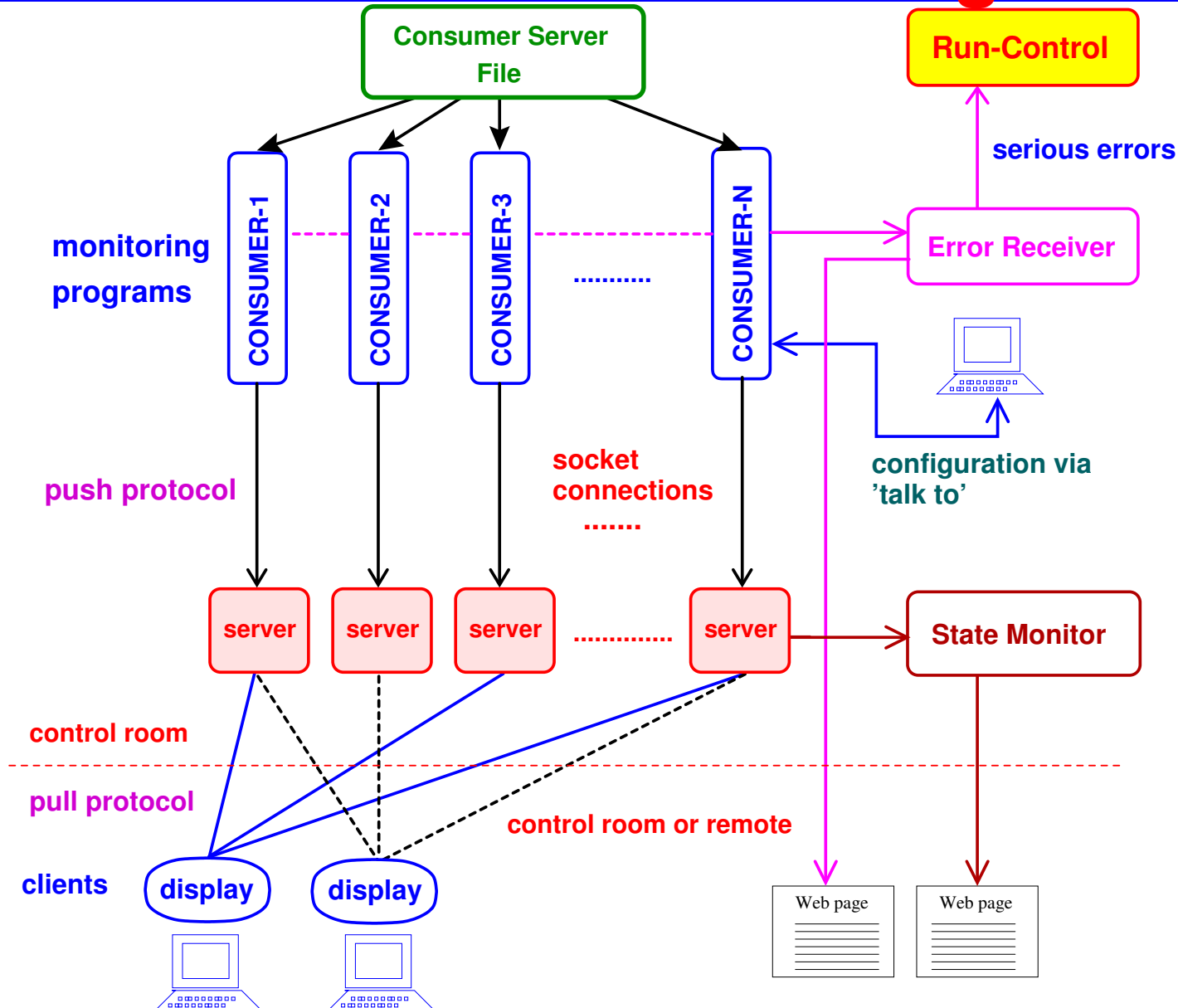
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TEVMON

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- **"TevMon" is a Java Program that monitors the beam conditions using information from ACNET**
- **List of ACNET variables monitored by TevMon**
 - C:LOSTP --> (mean and r.m.s) proton losses
 - C:LOSTPB --> (mean and r.m.s) anti-proton losses
 - T:L1COLI --> T.E.L on/off
 - C:B0PAGC --> abort gap
 - T:RFSUM --> RF station status
 - T:RFSUMA --> RF station status
 - C:B0ILUM --> integrated luminosity
- **SVX DANGER --> logic based on variables above determines whether silicon HV should be on.**
- **How TevMon works: Color code is used to identify possible problems:**
 - Cyan: no enough information is recorded
 - Green: OK
 - Pink: reading close to error state
 - Red: reading above threshold...error state
- **TevMon receives information from ACNET via SmartSockert every 10 seconds.**
- **Performs three independent computations of the mean and r.m.s of the different ACNET variables for readings of the last minute, last 5 minutes and last 10 minutes.**



Summary

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- **CDF is in very good shape and recorded 5.3 pb^{-1} of data in this record week!**
 - Losses have been low and stable
 - Silicon included $> 97\%$ of the data taking.
 - Testing new high lum trigger tables near the end of stores
 - to get us beyond $4e31 \text{ cm}^{-1} \text{ s}^{-1}$.
- **The two short accesses between stores helped to us to maintain high quality data taking.**
- **Using error warning and recovery feature in the data monitoring software – working very well.**
- **Also depending more on **TEVMON** to monitor beam conditions to tell us when losses are low enough for Si.**